

## **7852.2700 ENVIRONMENTAL IMPACT OF PREFERRED ROUTE**

**The applicant must also submit to the commission along with the application an analysis of the potential human and environmental impacts that may be expected from pipeline right-of-way preparation and construction practices and operation and maintenance procedures. These impacts include but are not limited to the impacts for which criteria are specified in part 7852.0700 or 7852.1900.**

NDPC has prepared an EIR for the Sandpiper Pipeline Project that provides a description of the existing environment along NDPC's preferred route, an analysis of potential human and environmental impacts, and a discussion of measures that will be implemented to protect and restore the right-of-way as well as mitigate adverse impacts. A summary of the potential human and environmental impacts is presented below. A summary of the existing environment along the preferred route is provided in Section 7852.2600 of this application. More detailed information on the human and environmental impacts as well as mitigating measures is provided in the EIR.

### **A. human settlement, existence and density of populated areas, existing and planned future land use, and management plans;**

#### Population Levels and Density

Population densities (an indicator of the extent of economic development) in the counties affected by the Project average 22.9 people per square mile. All county-level population densities are lower than the Minnesota average of 66.6 people per square mile, reflecting the rural character of the preferred route. County population levels within the Project area range from a low of 4,087 persons in Red Lake County to a high of 62,882 persons in Crow Wing County. Most of the cities within one mile of the preferred route have populations of less than 1,500 persons (see section 3.1 of the EIR). The Project is not expected to add to population densities or total population levels in the affected counties due to the temporary nature of the construction workforce. In general, the preferred route avoids population centers and residential areas.

Section 3.0 of the EIR presents information on current population levels and density in the counties crossed by the preferred route.

#### Land Use

The total land requirements for Sandpiper generally include a 120-foot-wide construction right-of-way in upland areas and a 95-foot-wide construction right-of-way in wetland areas with additional temporary workspaces at feature crossings such as roads, waterbodies, railroads, sideslopes, and other special circumstances. These additional temporary workspaces are construction areas that are required outside of the typical construction right-of-way to stage

equipment and stockpile spoil material. Construction of the Minnesota portion of the Project (excluding facilities) will temporarily affect approximately 4,266.1 acres of land (see section 4.2 of the EIR).

NDPC classified land use along the preferred route into the following five categories: forested land, agricultural land, developed land, open land, and wetlands/open water. Table 7852.2700-1 provides a summary of land use categories affected by pipeline construction and operation (also see section 4.2 of the EIR). Aboveground facilities at Clearbrook and Pine River will be constructed on 159.3- and 13.3-acre parcels, respectively; construction will only occur on a portion of the parcels.

<b>Table 7852.2700-1</b>				
<b>Land Use Affected by Construction and Operation of Sandpiper</b>				
	<b>Acreage Affected by Construction</b>		<b>Acreage Affected by Operation</b>	
	Acres	Percent	Acres	Percent
Forested	1,524.5	35.7	618.6	33.0
Agricultural	1,610.3	37.7	710.0	37.9
Developed	6.8	0.2	3.1	0.2
Open Land	510.2	12.0	236.7	12.6
Wetlands/Open Water	614.2	14.4	303.6	16.2
Total	4,266.1	100.0	1,872.0	100.0

Pipeline construction activities may interfere with planting or harvesting, depending on the timing of construction. Impacts on agricultural areas will be minimized by implementation of NDPC's Agricultural Protection Plan ("APP") (Appendix C to the EIR).

Pipeline construction may result in impacts on residential and commercial areas but these impacts will generally be short-term. These short-term impacts could include dust generated from construction equipment and excavation, increased ambient noise levels, and increased vehicular traffic.

To facilitate installation of the pipeline, trees and brush will be removed from the construction right-of-way and additional temporary workspaces. Following construction, the right-of-way will be restored and revegetated. Consistent with standard industry practices, the new permanent right-of-way in forest lands will be maintained in an herbaceous state to facilitate aerial inspection of the pipeline; however, the remainder of the construction right-of-way and the additional temporary workspaces will be allowed to revert to their natural forested state.

Open land consists of areas classified as bare rock, sand, or clay; quarries, strip mines or gravel pits; transitional; shrublands; grasslands or herbaceous areas; cleared portions of existing rights-of-way; and urban or recreational grasses. Open lands will be temporarily disturbed during grading, trenching, backfilling, and restoration. Once construction is complete, open land will be restored and revegetated.

NDPC will reduce the construction workspace width to 95-feet in wetlands to reduce impacts on these areas; therefore, this acreage is overrepresented. Following construction, wetlands will be allowed to revegetate naturally.

Sandpiper will cross two watershed districts and eight counties where comprehensive land use plans have been established. These are the Wild Rice and Red Lake Watershed Districts; and Polk, Red Lake, Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties. It is expected that the Project will be consistent with these land use plans. NDPC has initiated consultations with affected watershed districts and counties to ensure that the Project is designed and constructed in a manner that minimizes impacts on the land use objectives for these areas.

Section 4.0 of the EIR presents information on land use.

**B. the natural environment, public and designated lands, including but not limited to natural areas, wildlife habitat, water, and recreational lands;**

Vegetation, Wildlife, and Fisheries

During construction, existing vegetation will be removed from within the construction right-of-way and temporary workspace areas to facilitate the installation of the pipeline. The impact of clearing and the time required to achieve recovery of vegetation communities will depend on the size and age of the pre-existing vegetation. Active revegetation measures and rapid colonization by annual and perennial herbaceous species in the disturbed areas will restore most vegetative cover within the first growing season. In general, long-term impacts will be greatest in forest lands because forest vegetation is more structurally complex than other vegetation types and takes longer to re-establish naturally.

Impacts on vegetation adjacent to the Project area will be minimized through adherence to soil erosion control specifications, by confining clearing activities to the approved right-of-way and additional temporary workspaces, and by implementing revegetative measures in accordance with NDPC's Environmental Protection Plan ("EPP") (Appendix A to the EIR). Where the preferred route parallels existing pipeline rights-of-way, construction areas will overlap the existing maintained right-of-way, thereby reducing the amount of forest and shrub lands that will be cleared for construction.

Operation and maintenance of the pipeline facilities will have additional effects on vegetation after site clearing and right-of-way restoration are complete. To facilitate inspection of the pipeline, the permanent right-of-way periodically will be cleared of trees and shrubs to facilitate aerial inspection of the pipeline and maintain visibility of pipeline markers, which will be located at property lines and crossings of roads and waterbodies.

Construction and operation of the Project is not expected to have a significant impact on wildlife. Temporary impacts will occur during construction due to clearing of vegetation and disturbance of soils in the right-of-way. Most wildlife will disperse from the Project area as construction activities approach. Displaced species may recolonize in adjacent, undisturbed areas, or re-establish in their previously occupied habitats after construction is complete and suitable habitat is re-established. Long-term impacts will be limited to a loss of forest habitat due to clearing of the temporary construction right-of-way and additional temporary workspaces that are located in forested areas.

Construction will result in temporary impacts on streams, including trout streams and AMAs, crossed by the pipeline. Some potential impacts on fisheries resources, such as sedimentation and turbidity, removal of stream bank cover, introduction of water pollutants, or entrainment and impingement of aquatic organisms could result from construction activities. Overall, impacts from construction on fish and other aquatic organisms are expected to be localized and temporary. To minimize the potential for adverse impacts on fisheries at river and stream crossings, NDPC will implement erosion and sediment control measures specified in the EPP (Appendix A of the EIR) and limit the duration of construction in these waterbodies. NDPC will continue to consult with MNDNR regarding crossings of trout streams, AMAs, WMAs, and other sensitive waterbodies and wildlife areas.

NDPC has initiated consultation with USFWS and MNDNR on the presence of threatened and endangered species in the vicinity of the Project. NDPC will continue to consult with the USFWS and MNDNR on the status of mitigative strategies for these species. If any of the species are identified in the construction right-of-way during surveys, NDPC will work with the appropriate agency to develop mitigation plans to avoid and minimize impacts on the potentially affected species.

Section 7.0 of the EIR presents information on vegetation, wildlife and fisheries.

#### Terrain and Geology

NDPC will minimize impacts by restoring contours to pre-construction conditions to the extent practicable and by implementing the erosion control

measures described in its EPP (see Appendix A to the EIR). Less than one percent of the preferred route crosses areas with bedrock exposure and these bedrock exposures are limited to Carlton County. Blasting is not currently anticipated but may be employed if bedrock is discovered within the trench. Any sand, gravel, or metallic mineral deposits located in the operational right-of-way will be unavailable for mining after installation of the pipeline. NDPC will continue to work with the MNDNR, private exploration companies, and affected counties regarding crossings of active mineral leases on state and county lands.

Section 5.0 of the EIR presents information on terrain and geology.

#### Soils

Pipeline construction activities such as clearing, grading, trench excavation, and backfilling, as well as movement of construction equipment along the right-of-way may result in impacts on soil resources. NDPC will minimize or avoid these impacts on soils by implementing the mitigation measures described in the EPP and APP (Appendices A and C, respectively, to the EIR).

These measures will include topsoil segregation, compaction alleviation, removal of excess rock, restoration of agricultural drainage systems, and the installation of temporary and permanent erosion control structures. NDPC will also revegetate disturbed areas, with the exception of active cropland, following final grading.

Section 6.0 of the EIR presents information on soils.

#### Water Resources – Groundwater

Construction of the Project is not expected to have long-term impacts on groundwater resources. Ground disturbance associated with pipeline construction is primarily limited to the upper 10-feet, which is above the water table of most of the regional aquifers.

The introduction of contaminants to groundwater due to accidental release of construction related chemicals, fuels, or hydraulic fluid could have an adverse effect on groundwater quality, most notably near shallow water wells. NDPC's EPP (Appendix A to the EIR) describes measures that will be implemented to prevent accidental releases of fuels and other hazardous substances. The EPP also outlines response, containment, and cleanup procedures. By implementing the protective measures set forth in the EPP, long-term contamination due to construction activities is not anticipated.

Section 8.0 of the EIR presents information on groundwater.

#### Surface Water Resources

Pipeline construction across rivers and streams can result in temporary and long-term adverse environmental impacts if not mitigated. Temporary impacts from in-stream trenching could include an increase in the sediment load downstream of the crossing location. Sustained periods of exposure to high levels of suspended solids have been shown to cause fish egg and fry mortality and other deleterious impacts on fisheries and other aquatic resources. Surface runoff and erosion from the cleared right-of-way also can increase in-stream sedimentation during construction resulting in the shallowing of pools and a reduction of the quality of spawning beds and benthic substrate. NDPC's proposed waterbody construction methods, specifically with respect to erosion control, bank stabilization, and bank revegetation, will minimize short- and long-term impacts on the waterbodies along the preferred route.

NDPC will avoid and minimize impacts on waterbodies by implementing the erosion and sediment control measures described in the EPP (Appendix A of the EIR). NDPC will limit the duration of construction within waterbodies and limit equipment operation within waterbodies to the area necessary to complete the crossing. Disturbed areas at crossings will be restored and stabilized as soon as practicable after pipeline installation.

Alternative construction techniques (such as horizontal directional drill ("HDD") or dry crossing methods) may be used at selected waterbodies to avoid and minimize impacts on these waterbodies. The HDD method is a well-established construction technique for installing a pipeline under large (i.e., wide and deep) waterbodies that avoids impacts associated with conventional open-cut methods. However, HDD installations have the potential to affect waterbodies through inadvertent drilling mud release during construction. If HDDs are used to cross waterbodies, NDPC will follow the provisions of its EPP to attempt to prevent an inadvertent drilling mud release or to minimize environmental effects caused therefrom.

Releases from refueling operations, fuel storage, or equipment failure in or near a waterbody could affect aquatic resources and contaminate the waterbody downstream of the release point. NDPC will minimize the potential impact of a hazardous material release by adhering to the relevant provisions in its EPP.

Section 9.0 of the EIR presents information on surface water.

#### Federal, State, and County Recreational Areas

Construction and operation of the pipeline is not expected to have significant impacts on recreational lands. In Minnesota, 75.3 percent of the preferred route will be constructed within or generally adjacent to existing third-party rights-of-way, which will minimize potential impacts on public lands and



recreational areas. Sandpiper will have only minor and temporary impacts on public recreational areas, primarily limited to temporary inconveniences and localized disturbances. There will be no long-term impact on recreational activities within the public lands areas as a result of construction and operation of the pipeline. Vegetation maintenance could have limited visual impacts on public lands that are densely forested.

Project construction could temporarily restrict public use of recreational areas depending on the timing of construction, the season in which the recreational activity occurs, and the construction methods used. Public access to state and county lands, including foot trails, will be maintained to the greatest extent possible during construction. After construction is completed, the public lands will be restored to allow previous uses and recreational activities to continue.

Boating and recreational use of the waterbodies crossed by the Project may be temporarily affected during construction. Depending on the crossing method used, impacts on recreational users may include construction noise, downstream turbidity, or temporary obstructions at the crossing location.

NDPC will continue to coordinate with agencies regarding crossing of federal, state and county land.

Section 11.0 of the EIR presents information on recreational areas.

#### Air Quality

NDPC plans to submit a stationary source applicability determination request to the MPCA regarding the stationary source status of the new NDPC Clearbrook Terminal. NDPC will submit an appropriate air permit application based on the result of stationary source determination. NDPC will complete the required New Source Performance Standards notifications and submittals for the new storage tanks (see section 12.3 of the EIR). Project-related emissions at the new Clearbrook Terminal will be predominantly VOCs and are estimated to be 24 tons of VOC/year. Particulate emissions from the new Clearbrook Terminal will not increase as a result of the Project.

Emissions from construction are not expected to cause or significantly contribute to a violation of an applicable ambient air quality standard due to construction equipment being operated on an as-needed basis, primarily during daylight hours. Emissions from the gasoline and diesel engines would be minimized as the engines must be built to meet the standards for mobile sources established by the EPA mobile source emission regulations (Title 40 C.F.R. Part 85). In addition, the EPA requires that the maximum sulfur content of diesel fuel for highway vehicles be reduced from 500 parts per million by weight ("ppmw") to 15 ppmw in mid-2006, making lower sulfur diesel available nationwide.

NDPC's EPP (Appendix A of the EIR) specifies that the contractor would take all reasonable steps to control dust near residential areas and other areas as directed by NDPC, in order to minimize dust generated from construction activities. Control practices may include wetting soils on the right-of-way, limiting working hours in residential areas, and/or additional measures as appropriate based on site-specific conditions. The use of dust suppression techniques would minimize fugitive dust emissions during construction of the Project, thereby minimizing potential air quality impacts on nearby residential and commercial areas.

Section 12.0 of the EIR presents information on air quality.

**C. lands of historical, archaeological, and cultural significance;**

NDPC initiated consultation with the appropriate land managing and oversight agencies regarding impacts to cultural resources for the preferred route. NDPC reviewed the Minnesota SHPO's site files to identify previously recorded cultural resources and previously completed studies within the Project's 250- to 450-foot-wide environmental survey area. This review identified four previously recorded sites, two of which were revisited by NDPC during the 2013 field season. None of the previously recorded sites has been recommended as eligible for listing on the NRHP (see section 10.1 of the EIR).

NDPC completed cultural resources Phase I reconnaissance surveys for 86 percent of the environmental survey area in Minnesota in 2013. NDPC utilized a GIS predictive sensitivity model during the Phase I reconnaissance surveys. During the inventory NDPC recorded 36 archaeological sites. Surveys over the remaining portion of the environmental survey area will be completed in 2014. NDPC's surveys will attempt to determine the location of previously recorded sites, and will document unrecorded sites.

NDPC will evaluate all sites regarding NRHP eligibility, and provide treatment plans for those sites that are NRHP listed or eligible for listing and will be impacted by the Project. NDPC prefers to avoid recorded or unrecorded sites and may resort to: minor route deviations around identified sites; installing the pipeline beneath the site using conventional bore or HDD technology; and/or fencing sites or portions of sites to ensure that they are not disturbed during construction. If avoidance is not possible, NDPC will work with the consulting agencies to design other mitigation, such as data recovery, for sites.

In addition, NDPC has developed an Unanticipated Discoveries Plan (Appendix D of the EIR) which will be implemented in the event that a previously undocumented cultural (or paleontological) resource site is discovered during construction activities. The Unanticipated Discoveries Plan requires that any



find be examined and documented by an archaeologist, and that NDPC consult with the appropriate authorities and agencies. Work at the location of any cultural site will not resume until the find is properly analyzed and its treatment resolved. The measures in the Unanticipated Discoveries Plan are designed to avoid impacts to sites eligible for listing on the NRHP.

Section 10.0 of the EIR presents information on cultural resources.

**D. economies within the route, including agricultural, commercial or industrial, forestry, recreational, and mining operations;**

Per capita income in 2011 ranged from a low of \$22,408 in Red Lake County to a high of \$25,645 in Crow Wing County. The April 2013 unemployment rates in the Project area varied from 5.3 percent in Polk County to 15.2 percent in Clearwater County (compared to a statewide average of 5.4 percent). Employment in the Project area is concentrated in the following areas: education, health and social services; retail trade; manufacturing; arts, entertainment, recreation, accommodation and food services; and construction industries (see section 3.1 of the EIR).

NDPC anticipates that the Project will provide temporary beneficial impacts on the local economy during construction. Using the Regional Input-Output Modeling System<sup>1</sup> as developed and maintained by the United States Department of Commerce, Bureau of Economic Analysis, NDPC estimates that approximately 17,315 person-years<sup>2</sup> of temporary construction jobs will be created for the duration of construction. NDPC, through construction contractors and subcontractors, will hire local workers where the local workforce possesses the required skills. Construction personnel hired from outside the Project area will augment the local workforce and consist of supervisors, environmental inspectors, and highly skilled mechanical, electrical, and instrumentation/control tradesmen. Non-local workers will relocate to the Project area for the duration of construction. All workers will generally be dispersed along the length of the construction right-of-way rather than concentrated at a single work site. Non-local workers will reside in the vicinity of the Project for short periods, typically unaccompanied by family members.

Construction and operation of the Project will benefit local economies through expenditures for wages, purchase of materials, and annual taxes. Construction will create temporary jobs for both local and non-local workers. Operation of the Project will likely require NDPC to hire additional new full-time permanent employees.

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<sup>1</sup> <http://www.bea.gov/regional/rims/>

<sup>2</sup> Person-year is the equivalent of one-person working full-time for one year.

Section 3.0 of the EIR presents information on current per capita income, workforce, unemployment rates, and industry in the counties crossed by the preferred route.

**E. pipeline cost and accessibility;**

NDPC estimates the cost of constructing the 24- and 30-inch pipeline to be \$2.6 billion, including \$1.2 billion in Minnesota.

The pipeline will be an open access common-carrier pipeline. Through an open season process, Sandpiper will enter into contracts with shippers for a specified capacity to be transported (or paid for) over a 10-year term. The remaining capacity will be offered on a month-to-month basis and each month shippers will nominate the crude oil volumes they seek to transport. The tolls and tariff will be subject to FERC's approval.

The preferred route is located in a manner that facilitates access for normal pipeline maintenance, as well as emergency response.

**F. use of existing rights-of-way and right-of-way sharing or paralleling;**

Sandpiper will generally be co-located with existing pipeline right-of-way or other third-party rights-of-way in Minnesota. From the North Dakota border at approximate MP 300.0 the Project will generally follow NDPC's existing Line 81 right-of-way across Polk, Red Lake, and Clearwater counties to approximate MP 372.9 at the Clearbrook, Minnesota terminal. At Clearbrook, Minnesota, the pipeline will turn south and will generally follow the existing Minnesota Pipe Line Company right-of-way across Clearwater and Hubbard counties to a point near Hubbard, Minnesota at approximate MP 441.0. From Hubbard, Minnesota, the pipeline extends east paralleling existing electrical transmission, pipeline, and small utility rights-of-way, as well as minimal greenfield parcels for across Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties to MP 600.8, where it will cross the Minnesota/Wisconsin border.

Approximately 227.1 miles (75.3 percent) of the construction right-of-way in Minnesota would be co-located with or parallel to and offset from other existing rights-of-way (see section 1.1 of the EIR). Other third-party rights-of-way include roads, pipelines and electric transmission lines.

**G. natural resources and features;**

A detailed description of natural resources and features crossed by Sandpiper is presented in Sections A, B, C, and D, above.

**H. the extent to which human or environmental effects are subject to mitigation by regulatory control and by application of the permit conditions contained in part 7852.3400 for pipeline right-of-way preparation, construction, cleanup, and restoration practices;**

NDPC assumes this rule should refer to Minn. R. 7862.3600, which provides a list of 14 wide-ranging permit conditions that will be applied to the Project. NDPC designed the Project and planned construction with these conditions in mind, and believes that the conditions, together with regulatory oversight from the Minnesota Public Utilities Commission ("MPUC") and other state and federal regulatory agencies, will provide significant protection for the human and natural environments.

**I. cumulative potential effects of related or anticipated future pipeline construction;**

At this time, NDPC has no firm plans for future pipeline construction that would result in cumulative potential effects on environmental resources.<sup>3</sup> However, NDPC has routed the Project to facilitate construction of future projects as co-located facilities along the Sandpiper right-of-way. In the event that another project is approved and would follow the Sandpiper right-of-way, environmental impacts of subsequent construction would be reduced by utilizing the work space created for Sandpiper, to the extent practicable.

Additionally, NDPC has designed the Project to facilitate capacity expansions in the future should shippers request the ability to move additional volumes in excess of the capacities requested in this application. The Project has been designed for an ultimate design capacity of 406,000 bpd (365,000 bpd annual capacity) from the North Dakota/Minnesota border to Clearbrook, Minnesota. From Clearbrook, Minnesota to the Minnesota/Wisconsin border the pipeline has been designed for an ultimate capacity of 711,000 bpd (640,000 bpd annual capacity). The increases in capacity to the ultimate design capacity would be achieved through the addition of new pumping units along the pipeline right-of-way. The pipeline will be designed, constructed, and hydrostatically tested for operation at the ultimate design capacity.

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<sup>3</sup> NDPC understands Enbridge is considering replacing a segment of pipeline located in the Enbridge Mainline right-of-way in Carlton County near the Wisconsin border. Depending on the analysis of data obtained from an in-line inspection tool, the results of which are still pending, the segment replacement may become part of Enbridge's Integrity Management Program which performs routine maintenance on pipeline facilities in order to maintain safe and efficient operations. Other options, based on in-line inspection tool data, may include: visual inspection, sleeving or other more limited repair, as appropriate. NDPC would not be an applicant for such project. Enbridge would prepare a separate filing which would include analysis of any cumulative impacts created by that potential project.

**J. the relevant applicable policies, rules, and regulations of other state and federal agencies, and local government land use laws including ordinances adopted under Minnesota Statutes, section 299J.05, relating to the location, design, construction, or operation of the proposed pipeline and associated facilities.**

A list of known federal, state, and local approvals necessary for construction of the Project is presented in Section 7852.3000 of this application. NDPC will work with all regulatory agencies with permitting authority over the Project, and will satisfy all permit requirements of those agencies. NDPC expects that compliance with those permits will be a condition of any permit issued by the MPUC.